SEQUENCE LISTING

<110> Smeekens, J.C.M.
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Weisbeek, Petrus

<120> PRODUCTION OF OLIGOSACCHARIDES IN TRANSGENIC PLANTS

<130> ARNO-1-15313

<140> US 09/543,861
<141> 2000-03-24

<150> US 09/019,385
<151> 1998-02-05

<150> US 09/193,385
<151> 1998-11-17

<150> US 08/479,470
<151> 1995-06-07

<150> NL 1000064
<151> 1995-04-05

<150> NL 9401140
<151> 1994-08-07

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<170> PatentIn version 3.2

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Met Gly Ser His
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Gly Lys Pro Pro Leu Pro Tyr Ala Tyr Lys Pro Leu Pro Ser Asp Ala
5 10 15 20

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gcc gac ggt aag cgg acc ggc tgc atg agg tgg tcc gcg tgt gcc acc      153
Ala Asp Gly Lys Arg Thr Gly Cys Met Arg Trp Ser Ala Cys Ala Thr
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gtg ctg acg gcc tcg gcc atg gcg gtg gtg gtg gtc ggc gcc acg ctc      201
Val Leu Thr Ala Ser Ala Met Ala Val Val Val Val Gly Ala Thr Leu
            40                  45                  50

ctg gcg gga ttg agg atg gag cag gcc gtc gac gag gag gcg gcg gcg      249
Leu Ala Gly Leu Arg Met Glu Gln Ala Val Asp Glu Glu Ala Ala Ala
        55                  60                  65

ggc ggg ttc ccg tgg agc aac gag atg ctg cag tgg cag cgc agc ggt      297
Gly Gly Phe Pro Trp Ser Asn Glu Met Leu Gln Trp Gln Arg Ser Gly
    70                  75                  80

tac cat ttc cag acg gcc aag aac tac atg agc gat ccc aac ggc ctg      345
Tyr His Phe Gln Thr Ala Lys Asn Tyr Met Ser Asp Pro Asn Gly Leu
85                  90                  95                  100

atg tat tac cgt gga tgg tac cac atg ttc tac cag tac aac ccg gtg      393
Met Tyr Tyr Arg Gly Trp Tyr His Met Phe Tyr Gln Tyr Asn Pro Val
                105                 110                 115

ggc acc gac tgg gac gac ggc atg gag tgg ggc cac gcc gtg tcc cgg      441
Gly Thr Asp Trp Asp Asp Gly Met Glu Trp Gly His Ala Val Ser Arg
            120                 125                 130

aac ctt gtc caa tgg cgc acc ctc cct atc gcc atg gtg gcc gac cag      489
Asn Leu Val Gln Trp Arg Thr Leu Pro Ile Ala Met Val Ala Asp Gln
        135                 140                 145

tgg tac gac atc ctc gga gtc ctc tcg ggc tcc atg acg gtg cta ccc      537
Trp Tyr Asp Ile Leu Gly Val Leu Ser Gly Ser Met Thr Val Leu Pro
    150                 155                 160

aac ggg acg gtc atc atg atc tac acg ggc gcc acc aac gcc tcc gcc      585
Asn Gly Thr Val Ile Met Ile Tyr Thr Gly Ala Thr Asn Ala Ser Ala
165                 170                 175                 180

gtg gag gtc cag tgc atc gcc acc ccg gcc gac ccc aac gac ccc ctc      633
Val Glu Val Gln Cys Ile Ala Thr Pro Ala Asp Pro Asn Asp Pro Leu
                185                 190                 195

ctc cgc cgg tgg acc aag cac ccc gcc aac ccc gtc atc tgg tcg ccg      681
Leu Arg Arg Trp Thr Lys His Pro Ala Asn Pro Val Ile Trp Ser Pro
            200                 205                 210

ccg ggg gtc ggc acc aag gat ttc cga gac ccg atg acc gcc tgg tac      729
Pro Gly Val Gly Thr Lys Asp Phe Arg Asp Pro Met Thr Ala Trp Tyr
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gac gag tcc gac gag aca tgg cgc acc ctc ctc ggg tcc aag gac gac      777
Asp Glu Ser Asp Glu Thr Trp Arg Thr Leu Leu Gly Ser Lys Asp Asp
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cac gac ggc cac cac gac ggc atc gcc atg atg tac aag acc aag gac      825
His Asp Gly His His Asp Gly Ile Ala Met Met Tyr Lys Thr Lys Asp
245                 250                 255                 260

ttc ctc aac tac gag ctc atc ccg ggc atc ttg cac cgg gtg gtg cgc      873
Phe Leu Asn Tyr Glu Leu Ile Pro Gly Ile Leu His Arg Val Val Arg
                265                 270                 275

acc ggc gag tgg gag tgc atc gac ttc tac ccc gtc ggc cgg aga agc      921
Thr Gly Glu Trp Glu Cys Ile Asp Phe Tyr Pro Val Gly Arg Arg Ser
            280                 285                 290

agc gac aac tcg tcg gag atg ctg cac gtg ttg aag gcg agc atg gac      969
Ser Asp Asn Ser Ser Glu Met Leu His Val Leu Lys Ala Ser Met Asp
        295                 300                 305

gac gaa cgg cac gac tac tac tcg ctg ggc acg tac gac tcg gcg gcc     1017
Asp Glu Arg His Asp Tyr Tyr Ser Leu Gly Thr Tyr Asp Ser Ala Ala
    310                 315                 320

aac acg tgg acg ccc atc gac ccg gag ctc gac ttg ggg atc ggg ctg     1065
Asn Thr Trp Thr Pro Ile Asp Pro Glu Leu Asp Leu Gly Ile Gly Leu
325                 330                 335                 340

aga tac gac tgg gga aag ttt tat gcg tcc acc tcc ttc tat gat ccg     1113
Arg Tyr Asp Trp Gly Lys Phe Tyr Ala Ser Thr Ser Phe Tyr Asp Pro
                345                 350                 355

gcc aag aac cgg cgc gtg ctc atg ggg tac gtc ggc gag gtc gac tcc     1161
Ala Lys Asn Arg Arg Val Leu Met Gly Tyr Val Gly Glu Val Asp Ser
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aag cgg gct gat gtc gtc aag gga tgg gct tcc att cag tca gtt cct     1209
Lys Arg Ala Asp Val Val Lys Gly Trp Ala Ser Ile Gln Ser Val Pro
        375                 380                 385

agg acg gtg gct ctg gat gag aag acc cgg acg aac ctc ctg ctc tgg     1257
Arg Thr Val Ala Leu Asp Glu Lys Thr Arg Thr Asn Leu Leu Leu Trp
    390                 395                 400

ccc gtt gag gag atc gag acc ctc cgc ctc aat gcc acg gaa ctg acc     1305
Pro Val Glu Glu Ile Glu Thr Leu Arg Leu Asn Ala Thr Glu Leu Thr
405                 410                 415                 420

gac gtt acc att aac act ggc tcc gtc atc cat atc ccg ctc cgc caa     1353
Asp Val Thr Ile Asn Thr Gly Ser Val Ile His Ile Pro Leu Arg Gln
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Gly Thr His Ala Arg His Ala Glu Ala Ser Phe His Leu Asp Ala Ser
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gcc gtg gct gcc ctc aac gag gcc gat gtg ggc tac aac tgc agt agc     1449
Ala Val Ala Ala Leu Asn Glu Ala Asp Val Gly Tyr Asn Cys Ser Ser
        455                 460                 465

agc ggc ggc gct gtt aac cgc ggc gcg cta ggc ccc ttc ggc ctc ctc     1497
Ser Gly Gly Ala Val Asn Arg Gly Ala Leu Gly Pro Phe Gly Leu Leu
    470                 475                 480

gtc ctc gcc gcc ggt gac cgc cgt ggc gag caa acg gcg gtc tac ttc     1545
Val Leu Ala Ala Gly Asp Arg Arg Gly Glu Gln Thr Ala Val Tyr Phe
485                 490                 495                 500

tac gtg tct agg ggc ctt gac gga ggc ctc cac acc agc ttc tgc caa     1593
Tyr Val Ser Arg Gly Leu Asp Gly Gly Leu His Thr Ser Phe Cys Gln
                505                 510                 515

gat gag ctg aga tcg tca cga gcc aag gat gtg acc aag cgt gtc atc     1641
Asp Glu Leu Arg Ser Ser Arg Ala Lys Asp Val Thr Lys Arg Val Ile
            520                 525                 530

ggg agc acg gtg ccg gtg ctc gac ggt gag gct ttg tca atg agg gtg     1689
Gly Ser Thr Val Pro Val Leu Asp Gly Glu Ala Leu Ser Met Arg Val
        535                 540                 545

ctc gtg gat cac tcc atc gtg cag ggc ttc gac atg ggc ggg agg acc     1737
Leu Val Asp His Ser Ile Val Gln Gly Phe Asp Met Gly Gly Arg Thr
    550                 555                 560

acg atg acc tcg cgg gtg tac ccg atg gag tcg tat cag gag gca aga     1785
Thr Met Thr Ser Arg Val Tyr Pro Met Glu Ser Tyr Gln Glu Ala Arg
565                 570                 575                 580

gtc tac ttg ttc aac aac gcc acc ggt gcc agc gtg acg gcg gaa agg     1833
Val Tyr Leu Phe Asn Asn Ala Thr Gly Ala Ser Val Thr Ala Glu Arg
                585                 590                 595

ctg gtc gtg cac gag atg gac tcg gca cac aac cag ctc tcc aat gag     1881
Leu Val Val His Glu Met Asp Ser Ala His Asn Gln Leu Ser Asn Glu
            600                 605                 610

gac gat ggc atg tat ctt cat caa gtt ctt gaa tct cgt cat             1923
Asp Asp Gly Met Tyr Leu His Gln Val Leu Glu Ser Arg His
        615                 620                 625

taataagcta cattggatca aagaagatca ccagggaagg gcaattcata cataaatcga   1983

atcattctgc acaacctcgc ttgcagcatg cattgaaaca tctgtatttg gatcatcttc   2043
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ttcatttatg tcatagtgaa ctatattact ttgtaaaaaa aaaaaaaaaa a 2094

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35 40 45

Gly Ala Thr Leu Leu Ala Gly Leu Arg Met Glu Gln Ala Val Asp Glu
50 55 60

Glu Ala Ala Ala Gly Gly Phe Pro Trp Ser Asn Glu Met Leu Gln Trp
65 70 75 80

Gln Arg Ser Gly Tyr His Phe Gln Thr Ala Lys Asn Tyr Met Ser Asp
85 90 95

Pro Asn Gly Leu Met Tyr Tyr Arg Gly Trp Tyr His Met Phe Tyr Gln
100 105 110

Tyr Asn Pro Val Gly Thr Asp Trp Asp Asp Gly Met Glu Trp Gly His
115 120 125

Ala Val Ser Arg Asn Leu Val Gln Trp Arg Thr Leu Pro Ile Ala Met
130 135 140

Val Ala Asp Gln Trp Tyr Asp Ile Leu Gly Val Leu Ser Gly Ser Met
145 150 155 160

Thr Val Leu Pro Asn Gly Thr Val Ile Met Ile Tyr Thr Gly Ala Thr
165 170 175

Asn Ala Ser Ala Val Glu Val Gln Cys Ile Ala Thr Pro Ala Asp Pro
180 185 190

Asn Asp Pro Leu Leu Arg Arg Trp Thr Lys His Pro Ala Asn Pro Val
195 200 205

Ile Trp Ser Pro Pro Gly Val Gly Thr Lys Asp Phe Arg Asp Pro Met
210 215 220

Thr Ala Trp Tyr Asp Glu Ser Asp Glu Thr Trp Arg Thr Leu Leu Gly
225 230 235 240

Ser Lys Asp Asp His Asp Gly His His Asp Gly Ile Ala Met Met Tyr
245 250 255

Lys Thr Lys Asp Phe Leu Asn Tyr Glu Leu Ile Pro Gly Ile Leu His
260 265 270

Arg Val Val Arg Thr Gly Glu Trp Glu Cys Ile Asp Phe Tyr Pro Val
275 280 285

Gly Arg Arg Ser Ser Asp Asn Ser Ser Glu Met Leu His Val Leu Lys
290 295 300

Ala Ser Met Asp Asp Glu Arg His Asp Tyr Tyr Ser Leu Gly Thr Tyr
305 310 315 320

Asp Ser Ala Ala Asn Thr Trp Thr Pro Ile Asp Pro Glu Leu Asp Leu
325 330 335

Gly Ile Gly Leu Arg Tyr Asp Trp Gly Lys Phe Tyr Ala Ser Thr Ser
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Phe Tyr Asp Pro Ala Lys Asn Arg Arg Val Leu Met Gly Tyr Val Gly
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Glu Val Asp Ser Lys Arg Ala Asp Val Val Lys Gly Trp Ala Ser Ile
370 375 380

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Gln Ser Val Pro Arg Thr Val Ala Leu Asp Glu Lys Thr Arg Thr Asn
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Thr Glu Leu Thr Asp Val Thr Ile Asn Thr Gly Ser Val Ile His Ile
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Pro Leu Arg Gln Gly Thr His Ala Arg His Ala Glu Ala Ser Phe His
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Leu Asp Ala Ser Ala Val Ala Ala Leu Asn Glu Ala Asp Val Gly Tyr
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Asn Cys Ser Ser Ser Gly Gly Ala Val Asn Arg Gly Ala Leu Gly Pro
465                 470                 475                 480

Phe Gly Leu Leu Val Leu Ala Ala Gly Asp Arg Arg Gly Glu Gln Thr
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Ala Val Tyr Phe Tyr Val Ser Arg Gly Leu Asp Gly Gly Leu His Thr
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Ser Phe Cys Gln Asp Glu Leu Arg Ser Ser Arg Ala Lys Asp Val Thr
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Lys Arg Val Ile Gly Ser Thr Val Pro Val Leu Asp Gly Glu Ala Leu
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Ser Met Arg Val Leu Val Asp His Ser Ile Val Gln Gly Phe Asp Met
545                 550                 555                 560

Gly Gly Arg Thr Thr Met Thr Ser Arg Val Tyr Pro Met Glu Ser Tyr
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Gln Glu Ala Arg Val Tyr Leu Phe Asn Asn Ala Thr Gly Ala Ser Val
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Arg His
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<210> 11
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